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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,027	08/20/2001	Koichi Fujimori	1035-336	5230

7590 02/28/2003

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EXAMINER

CHUNG, DAVID Y

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 02/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/932,027

Applicant(s)

FUJIMORI ET AL.

Examiner

David Y. Chung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 and 14 is/are allowed.
- 6) ☒ Claim(s) 1, 5 and 8-12 is/are rejected.
- 7) ☒ Claim(s) 2-4, 6 and 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 5 and 9 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kishimoto (U.S. 6,072,557).

As to claim 1, note the color liquid crystal display disclosed in figure 1 of Kishimoto. Note pixel electrodes 20 having sloped portions causing variable thickness of the liquid crystal layer within each pixel. The column spacers 22 are formed where the liquid crystal layer is thinnest and are elongated to maintain a gap between the two spacers.

As to claim 5, note the color filter 12 and black matrix 14. The column spacers 22 are formed on black matrix 14.

As to claim 9, Kishimoto teaches that when no voltage is applied to the liquid crystal, the liquid crystal molecules are aligned in a vertical direction to the substrate

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surface by an alignment regulating force of the vertical alignment films formed on the substrates.

2. Claims 11 and 12 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Sato et al. (U.S. 5,952,676).

Sato et al. discloses a method of making a liquid crystal display comprising forming spacers by photolithography. See figures 2A to 2C. Sato et al. teaches forming transparent electrode strips, coating a polyimide film over the electrode strips, treating the oriented film by rubbing, spinning epoxy resin on the oriented film and exposing it to UV light through a mask to form pillars.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 8 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Kishimoto (6,072,557).

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As to claim 8, Kishimoto does not disclose black column spacers. However, it was conventional to form black column spacers because they are disposed in the light-shielding area between pixels. Forming black column spacers further reduces the amount of light leakage and leads to improved contrast. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form black column spacers in the display of Kishimoto in order to improve contrast.

As to claim 10, Kishimoto does not disclose that the column spacers account for 0.05 % to 3.0 % of the panel area. However, it was well known and obvious to make the spacers such that they account for a percentage of the area of the panel in range as claimed. Having the spacers account for a smaller percentage would have jeopardized the structural reliability of the display and having them account for a larger percentage would have reduced the aperture ratio. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form the spacers such that they account for a percentage of the panel area in the range of 0.05 % to 3.0 % in order to obtain a display with sufficient structural reliability and sufficient aperture ratio.

Allowable Subject Matter

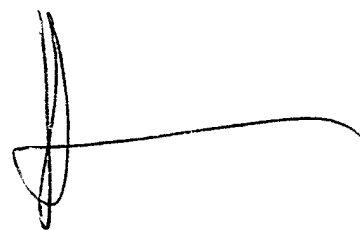
Claims 2-4, 6 and 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 13 and 14 allowed.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (703) 306-0155. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.

A handwritten signature in black ink, consisting of a stylized 'K' followed by a horizontal line extending to the right.

KENNETH PARKER
PRIMARY EXAMINER

David Chung
GAU 2871
02/23/03